

Mission Partnerships with GSFC's ASD

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Deputy Director
Astrophysics Science Division
NASA's GSFC

Who we are in ASD

Particle Astrophysics Lab
(661)
Elizabeth Hays



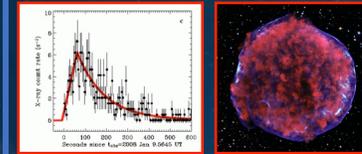
Swift Fermi

Astrophysics Science Division (660)

- Rob Petre – Director
- Rita Sambruna – Deputy Director
- Aki Roberge – Associate Dir. (Strategy & Tech.)
- Amber Straughn – Associate Director (Comms)
- Keith Jahoda – Chief Technologist
- Dave Richardson – LOB manager

High Energy Astrophysics
Science Archive Research
Center
(660.1)

Alan Smale



X-ray Astrophysics Lab
(662)
Ann Hornschemeier



NICER NuSTAR

Gravitational Astrophysics Lab
(663)

John Baker (Acting)



LISA

Observational Cosmology Lab
(665)

Erin Smith



JWST Roman

Stellar Astrophysics &
Exoplanets Lab
(667)

Paul Scowen (Acting)



Hubble TESS

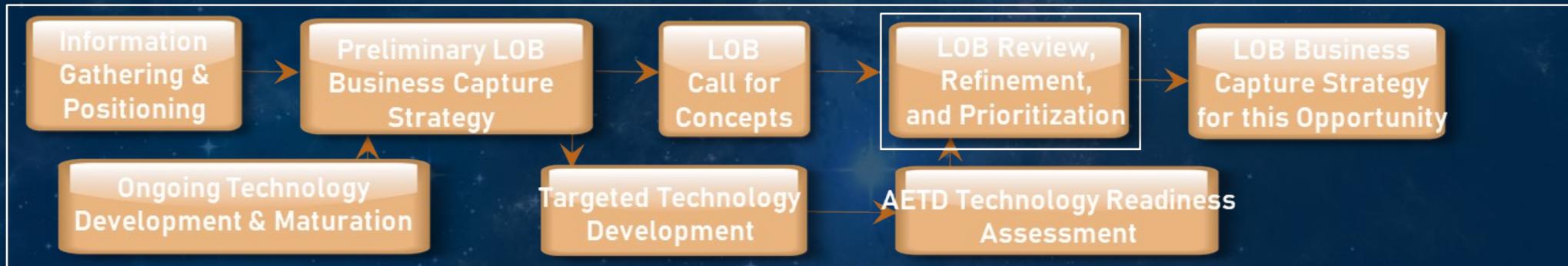
The Process in ASD (1/2): internal

- The Astrophysics Science Division (Code 660) uses this process to select mission concepts:
 - PIs submit their idea to their Lab Chiefs
 - Lab Chiefs hold Lab meetings to socialize the concepts
- The Division holds a Mission Fair where concepts are presented with emphasis on the science and high-level hardware
 - We work with PIs for improvements
 - Division is solicited for comments and expressions of interest for team building

The Process in ASD (2/2): Center

- A multi-organizational group, the “Line of Business” recommends concepts to the Center for consideration for a given AO
- Approved missions enter the “river of concepts” – a series of Center's gate reviews for feasibility, cost, and risk – before being approved for proposal writing and submission
- These include peer reviews with Blue and Red Teams

Strategic Positioning Phase



What should PIs bring to Center?

- The science goals in as much detail as possible
 - The science objectives, clearly enunciated
 - The necessary measurements and observations
- In summary, the first 3 columns of the Science Traceability Matrix!

Standard STM Format

Column #	1	2	3 4		5	6	7	8
	Science Goals	Science Objectives	Scientific Measurement Requirements		Instrument Performance Requirements		Projected Instrument Performance	Mission Requirements (Top Level)
			Observables	Physical parameters				
	Goal 1		Absorption line	Column density of absorber	Alt. Range	XX km	ZZ km	Observing strategies: requires yaw and elevation maneuvers
	Goal 2		Density and temperature					Launch window: to meet nadir and limb overlap

How is ASD/Center going to evaluate?

- Compelling Science addressing strategic goals of the Astrophysics Decadal and NASA
- Within cost cap
- Understanding of risks and related mitigations
- Leveraging key capabilities and expertise of GSFC
- Clear, significant Center contribution

Starting the Process – Start early!

- Have an idea? Contact asap Dr. Rita Sambruna, ASD deputy director rita.m.Sambruna@nasa.gov

PIs will be invited to visit and give a presentation at the Mission Fair
Mission Fairs held twice a year (Spring and Fall)
next one: Fall 2023

SMEX proposals call coming Q2 2025 for Astrophysics
Pioneers yearly call
Not too soon to start!!

Backup

Our objectives

- GSFC is a NASA Center with broad expertise in science, technology development, engineering, and management
- Our skills serve the astrophysics community:
 - Developing technology for flagships (large mirrors)
 - Providing key hardware in optics, cryogenics, lab designs
 - System engineering and Project management
- We welcome ideas for missions that:
 - Provide compelling science
 - Address strategic goals of the community and NASA
 - Leverage existing Center capabilities

Examples

- ASD has successfully partnered with external orgs including academia, industry, other government labs, intn'l agencies:
 - Pandora: Pioneer, partnership with LLNL
 - TESS: MDEX, partnership with MIT
 - XRISM: MDEX-class mission, partnership with JAXA
 - NuSTAR: SMEX, partnership with Caltech
 - Athena, LISA: flagship-size, partnership with ESA
 - TigerISS: instrument on ISS, partnership with Univ. Washington
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